Consider the following database schema:

**Instructor**(*InstNo*, Name, Rank)

**Student**(*StudentNo*, Name, Address, EnrollD, GraduatD)

**Course**(*CourseNo*, Title, nbHours, InstNo)
InstNo references Instructor(InstNo)

**Take**(*StudentNo*, *CourseNo*, Grade)
*StudentNo* references Student(StudentNo)
*CourseNo* references Course(CourseNo)

**Exercise 1**
Create the database whose the schema is given above.

**Exercise 2**
Write in TSQL the following constraints. Check each constraint by proposing a query (delete/update) violating the constraint.

(a) The rank of an instructor must be ”Assistant”, ”Associate” or ”Full”;

(b) *(Name, Address)* of students is unique;

(c) The *CourseNo* should begin with ”INFO”, ”MATH” or ”PHYS”;

(d) The name of students should not be NULL;

(e) The default value of ”GraduatD” is the current date;

(f) The default value of ”EnrollD” is the current date;

(g) The number of hours of any course should be between 20 and 60 hours

(h) The grade must be between 0 and 20

**Exercise 3**

(a) Add to the Instructor table, an attribut birthDI;

(b) Add to the Student table, an attribut birthDS;

(c) Write in TSQL the following constraints:

i) The age of students must be greater than 18;
ii) The age of instructors must be greater than 30.

(d) Delete the column birthDI and birthDS.

**Exercise 4**

(a) Drop all the constraints;

(b) Add a ON DELETE CASCADE ON UPDATE CASCADE constraint to the CourseNo attribut in the relation Take;

(c) Add a ON DELETE SET NULL ON UPDATE SET NULL constraint to the attribut StudentNo in the relation Take;

(d) Add a ON DELETE CASCADE ON UPDATE SET NULL constraint to the InstNo attribut in the relation Course;

(e) Propose queries to test the added constraints.